Ordering number: EN 4019

Monolithic Linear IC



No.4019

LA6525M

Four-channel Bridge Driver for Compact Disc Players

OVERVIEW

The LA6525M is a four-channel, high-current bridge driver IC with output muting. It features two dual-output 400 mA (max) and two dual-output 700 mA (max) channels, making it ideal for use in compact disc players.

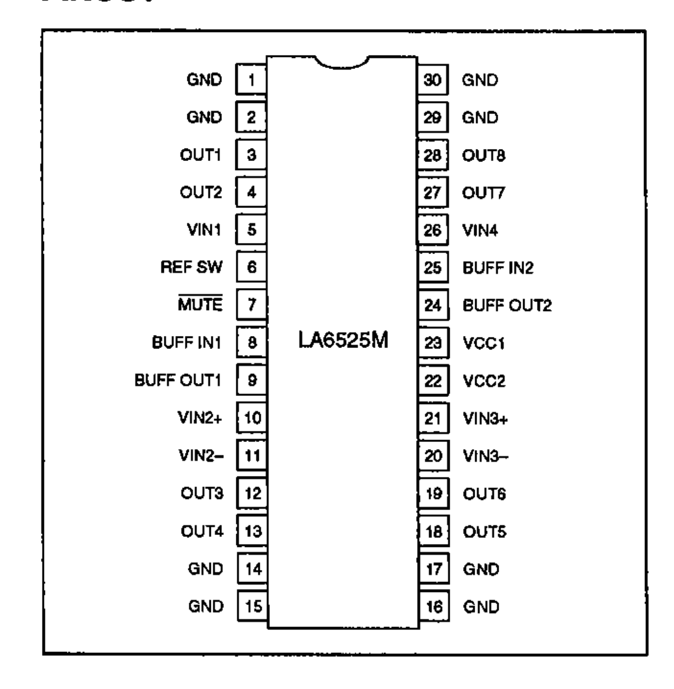
The LA6525M incorporates a reference voltage switch, a thermal protection circuit and two input buffer amplifiers in addition to the output driver amplifiers.

The LA6525M operates from a 5 V supply and is available in 30-pin MFPs.

FEATURES

- Four-channel bridge connection (BTL) power amplifier
- Output muting
- Two dual-output 400 mA (max) and two dual-output 700 mA (max) channels
- Reference voltage switch
- Thermal protection circuit
- Two input buffer amplifiers
- 5 V supply
- 30-pin MFP

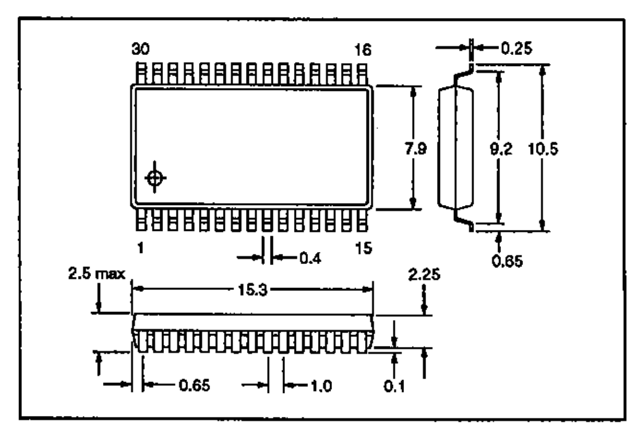
PINOUT



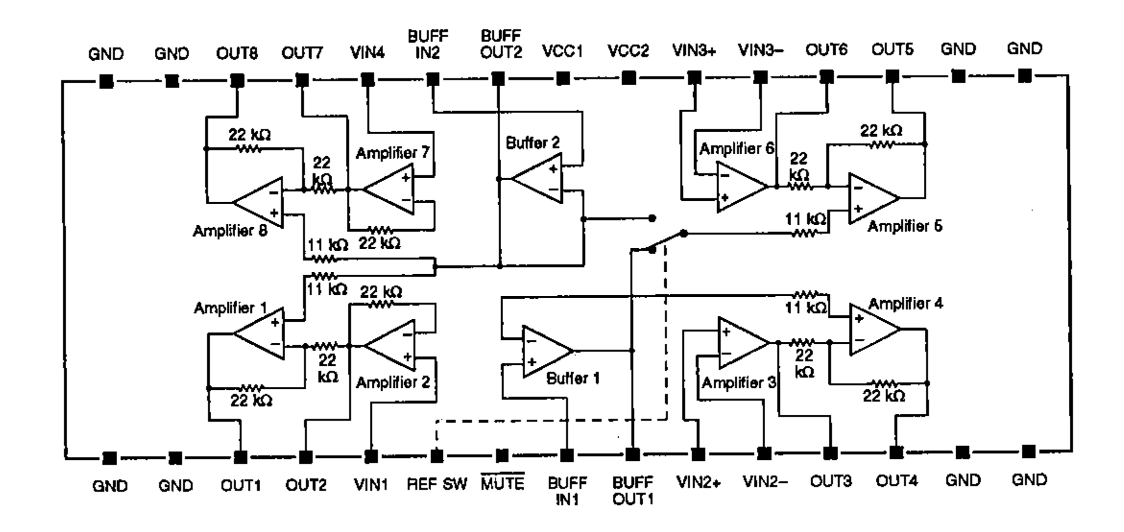
PACKAGE DIMENSIONS

Unit: mm

3073A-MFP30S



BLOCK DIAGRAM



PIN DESCRIPTION

Number	Name	Description
1, 2, 14 to 17, 29, 30	GND	Ground
3	OUT1	Amplifier 1 output. 700 mA (max) output current
4	OUT2	Amplifier 2 output. 700 mA (max) output current
5	VIN1	Amplifier 2 input
6	REF SW	Reference switch control input
7	MUTE	Mute control input
8	BUFF IN1	Buffer 1 input
9	BUFF OUT1	Buffer 1 output
10	VIN2+	Amplifier 3 non-inverting input
11	VIN2–	Amplifier 3 inverting input
12	OUT3	Amplifier 3 output. 400 mA (max) output current
13	OUT4	Amplifier 4 output. 400 mA (max) output current
18	OUT5	Amplifier 5 output. 400 mA (max) output current
19	OUT6	Amplifier 6 output. 400 mA (max) output current
20	VIN3–	Amplifier 6 inverting input
21	VIN3+	Amplifier 6 non-inverting input
22, 23	VCC2, VCC1	5 V supplies
24	BUFF OUT2	Buffer 2 output
25	BUFF IN2	Buffer 2 input
26	VIN4	Amplifier 7 input
27	OUT7	Amplifier 7 output. 700 mA (max) output current
28	OUT8	Amplifier 8 output. 700 mA (max) output current

SPECIFICATIONS

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	9	V
MUTE input voltage	V_{MUTE}	8	V
Differential input voltage	V_{ID}	8	V
Common-mode input voltage	V_{ICM}	8	V
Buffer amplifier input voltage	V_{IB}	8	V
Input voltage for all other inputs	V_I	8	V
Power dissipation	P_D	0.9	W
Operating temperature range	T_{opr}	–20 to 75	°C
Storage temperature range	T_{stg}	–55 to 150	°C

Recommended Operating Conditions

T_a = 25 °C

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5	V

Electrical Characteristics

V_{CC} = 5 V, T_a = 25 °C

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	I_{CC}	Mute is OFF. See note 1.	25	40	60	mA
		Mute is ON. See note 1.	5	9	20	
BUFF IN1 and BUFF IN2 input voltage	V_{BICM}		1.5	–	V_{CC} – 1.5	V
Mute turn-ON voltage	V_{MUTE}		–	2.2	–	V
Reference switch turn-ON voltage	V_{REFSW}		–	2.5	–	V
Input voltage for all other inputs	V_{ICM}		1.0	–	V_{CC} – 1.5	V
Bridge amplifier closed-loop voltage gain	G_V		–	6	–	dB
OUT1, OUT2, OUT7 and OUT8 output source voltage	V_{O1}	See note 2.	3.4	3.6	–	V
OUT1, OUT2, OUT7 and OUT8 output sink voltage	V_{O2}	See note 2.	–	1.0	1.4	V
OUT3, OUT4, OUT5 and OUT6 output source voltage	V_{O3}	See note 2.	2.8	3.4	–	V
OUT3, OUT4, OUT5 and OUT6 output sink voltage	V_{O4}	See note 2.	–	1.6	2.2	V
Amplifiers 3 and 6 output limiting voltage	V_{OL}		–	5	–	V
OUT1, OUT2, OUT7 and OUT8 output offset voltage	V_{OFF1}	See note 3.	–50	–	50	mV

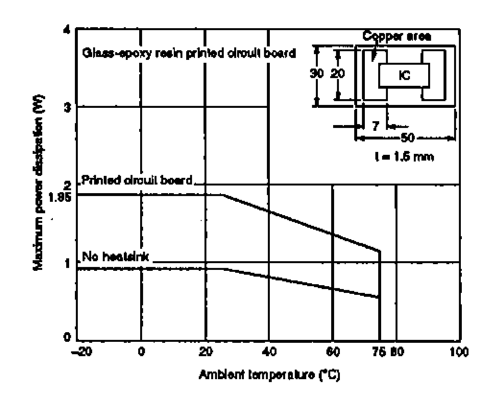
Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
OUT3 and OUT4 output offset voltage	V_{OFF2}	See note 3.	–30	–	30	mV
OUT5 and OUT6 output offset voltage	V_{OFF3}	Reference switch ON or OFF. See note 3.	–40	–	40	mV
Buffer 1 input-to-output voltage differential	V_{BIO1}		–30	–	30	mV
Buffer 2 input-to-output voltage differential	V_{BIO2}		0.5	0.6	0.8	V
Amplifier 2 input-to-output voltage differential	V_{IO2}		0.5	0.6	0.8	V
Amplifier 7 input-to-output voltage differential	V_{IO7}		0.5	0.6	0.8	V
VIN2+, VIN2–, VIN3+ and VIN3– input bias current	I_B	See note 4.	–	100	500	nA
Mute turn-ON current	I_{MUTE}		–	80	–	µA
Reference switch turn-ON current	I_{REFSW}		–	26	–	µA
OUT1 to OUT8 load resistance	R_L		–	8	–	Ω

Notes

1. Amplifier non-inverting inputs are held at 0.5 V and amplifier inverting inputs are connected to outputs through a 22 kΩ resistor.
2. Output-to-ground voltage when an 8 Ω load is connected between a pair of bridge amplifier outputs.
3. Voltage differential between a pair of bridge amplifier outputs
4. Amplifier non-inverting input is connected to $0.5V_{CC}$ through a 100 kΩ resistor, inverting input is connected to output through a 100 kΩ resistor. The current is determined from the voltage across the resistors.

Typical Performance Characteristics

Maximum power dissipation vs. ambient temperature



TYPICAL APPLICATION

